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IN THE CLAIMS:

Claims 1-47 – (Canceled)

48. (Previously Presented) A method for providing high connectivity communications over an optical ring network comprising the steps of:

- generating a set of serial packets by a tunable laser;
- stacking said set of serial packets to form a first composite packet by said stacker;
- performing a serial-to-parallel conversion process such that said first composite packet is in a single photonic time slot;
- flipping an optical crossbar switch connecting a core optical ring to said stacker to a cross state;
- adding said first composite packet to said core optical ring via said optical crossbar switch such that said first composite packet propagates on said core optical ring for distribution to said first composite packet's destination;
- at least one second composite packet circulating around said core optical ring for distribution to said second composite packet's destination;
- locating said destination of said second composite packet;
- dropping said second composite packet at said destination for said second composite packet; and
- distributing said composite packet by wavelength.

49. (Previously Presented) A method for accomplishing transparent bypass over a high connectivity communications optical ring network comprising the steps of:

- determining that a first composite packet, propagating on a core optical ring, is to be dropped at a node of said core optical ring, said node having an optical crossbar switch, said optical crossbar switch further coupled to a subtending system such that said first composite packet is able to be further distributed on said subtending system;
- flipping said optical crossbar switch into a bar state;
- dropping said first composite packet via said flipped optical crossbar switch;
- receiving by a first WDM of said first composite packet;
- filtering and separating, by said first WDM wavelengths of parallel packets comprising said first composite packet, that are to be further distributed on said subtending system;
- serializing said parallel packets;

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further distributing said serialized packets;
forwarding wavelengths not destined for further distribution on said subtending system to a second WDM; and
outputting said wavelengths not destined for further distribution back onto said core optical ring in a vacant photonic time slot via said optical crossbar switch in said cross state.

50. (Previously Presented) The method according to claim 49, further comprising the steps of:

generating a serial stream of packets;
forming a second composite packet in a single photonic time slot from said serial stream of packets; and
interleaving said second composite packet with said wavelengths not destined for further distribution on said subtending system prior to outputting said wavelengths not destined for further distribution on said subtending system back onto said core optical ring.

51. (Canceled)

52. (Currently Amended) A method for accomplishing transparent bypass over a high connectivity communications optical ring network comprising the steps of:

dropping a first composite packet comprising a plurality of parallel packets at a node of a core optical ring via an optical crossbar switch in a cross state;

serializing and further distributing a first portion of said plurality of parallel packets; and

passing a second portion of said plurality of parallel packets through and outputting said second portion of said plurality of parallel packets back onto said core optical ring.

~~The method according to claim 51~~, wherein said serializing step is accomplished via a plurality of three - and four-port circulators and a plurality of fiber Bragg gratings (FBGs).

53. (Previously Presented) The method according to claim 52, wherein said passing step is accomplished via said plurality of three- and four-port circulators and said plurality of FBGs.

54-72. (Canceled)